

This listing of claims will replace all prior version, and listings, of claims in the application:

Listing of Claims:

1. *(Withdrawn)* An optical transmitter and receiver assembly comprising
 - at least one transmitter component (2) and
 - at least one receiver component (3, 4) and also
 - a lens (14, 15); which serves for the optical coupling of the transmitter component and/or the receiver component to an optical fiber that can be fixed to the transmitter and/or receiver assembly (1),characterized by
 - a planar optical circuit (5) consisting of one integrated waveguide (51),
 - light from the transmitter component (1) being coupled into the waveguide (51) of the planar optical circuit (5) and
 - light being coupled out from the waveguide (51) of the planar optical circuit (5) and being guided onto the receiver component (3, 4) ,
 - the transmitter component (1) and the receiver component (3, 4) in this case being situated outside the plane in which the integrated waveguide (51) is formed in the planar optical circuit (5) ,
 - the lens (14, 15) being arranged on the planar 25 optical circuit (5) ,
 - the light being guided between the lens (14, 15), on the one hand, and the transmitter component (2) and the receiver component (3, 4), on the other hand, in the integrated waveguide (51).
2. *(Withdrawn)* The circuit arrangement as claimed in claim 1, characterized in that the lens (14) is arranged in a cutout (13) on the surface of the planar optical circuit (5).
3. *(Withdrawn)* The circuit arrangement as claimed in claim 2, characterized in that the cutout (13) is formed in the shape of a pyramid, in particular in the shape of a truncated pyramid.

4. (*Withdrawn*) The circuit arrangement as claimed in claim 2 or 3, characterized in that the lens (14) is a spherical lens.

5. (*Withdrawn*) The circuit arrangement as claimed in claim 1, characterized in that the lens (15) is arranged at the end side on an end area (55) of the planar optical circuit (5) and in this case in a manner directly adjoining the end area of the integrated waveguide (51) of the planar optical circuit (5).

6. (*Withdrawn*) The circuit arrangement as claimed in claim 5, characterized in that the lens (15) is fixed to the end area (55) of the planar optical circuit (5) by means of an index-matched adhesive.

7. (*Withdrawn*) The circuit arrangement as claimed in claim 5 or 6, characterized in that the lens (15) is formed as a planoconvex lens and the plane side (15a) is fixed to the end area (55) of the planar optical circuit (5).

8. (*Withdrawn*) The circuit arrangement as claimed in one of claims 5, 6, or 7, characterized in that a plurality of receiver components (3, 4) are provided and these in each case detect light having a different wavelength, the waveguide (51) in each case having coupling-out and deflection means (91, 92, 8) which couple out the received light for each received wavelength wavelength-selectively from the plane of the planar optical circuit (5) and guide it onto the assigned receiver component (3, 4).

9. (*Currently Amended*) The circuit arrangement as claimed in claim 8, An optical transmitter and receiver assembly comprising:

at least one transmitter component (2);

at least one receiver component (3, 4);

a lens (14, 15) for the optical coupling of the at least one transmitter component or the at least one receiver component to an optical fiber;

a planar optical circuit (5) consisting of one integrated waveguide (51);

a first light signal from the at least one transmitter component (2) being coupled into the waveguide (51) of the planar optical circuit (5); and
a second light signal being coupled out from the waveguide (51) of the planar optical circuit (5) and being guided onto the at least one receiver component (3, 4),
characterized in that:

the at least one transmitter component (2) and the at least one receiver component (3, 4) in this case being situated outside the plane in which the integrated waveguide (51) is formed in the planar optical circuit (5);
the lens (14, 15) being arranged on the planar 25 optical circuit (5);
the first light signal being guided between the lens (14, 15), on the one hand, and the at least one transmitter component (2) and the second light signal to the at least one receiver component (3, 4) in the integrated waveguide (51);
the lens (15) is arranged at the end side on an end area (55) of the planar optical circuit (5) and in this case in a manner directly adjoining the end area of the integrated waveguide (51) of the planar optical circuit (5);
the lens (15) is fixed to the end area (55) of the planar optical circuit (5) by means of an indexed-matched adhesive;
the lens (15) is formed as a planoconvex lens and the plane side (15a) is fixed to the end area (55) of the planar optical circuit (5);
a plurality of receiver components (3, 4) are provided and these in each case detect light having a different wavelength, the waveguide (51) in each case having coupling-out and deflection means (91, 92, 8) which couple out the received light for each received wavelength wavelength-selectively from the plane of the planar optical circuit (5) and guide it onto the assigned receiver component (3, 4); and
the coupling-out and deflection means are in each case formed by a Mach-Zehnder component (91, 92) and an assigned deflection prism (8), light having a specific wavelength being coupled out from the waveguide (51) by the Mach-Zehnder component (91, 92), being fed to the deflection

prism (8) and being deflected by the latter onto the at least one receiver component (3, 4).

10. (*Withdrawn*) The circuit arrangement as claimed in claim 8, characterized in that the coupling-out and deflection means are in each case formed by a wavelength-selectively coated mirror area which interrupts the waveguide of the planar optical circuit under consideration in an oblique arrangement and couples out light having a specific wavelength from the waveguide, while it is transparent to light having other wavelengths.
11. (*Withdrawn*) The circuit arrangement as claimed in claim 8, characterized in that the planar optical circuit (5) is arranged on the top side of a substrate (6).
12. (*Withdrawn*) The circuit arrangement as claimed in claim 11, characterized in that the at least one transmitter component (2) and the at least one receiver component (3, 4) are arranged on the underside of the substrate (6).
13. (*Withdrawn*) The circuit arrangement as claimed in claim 12, characterized in that the transmitter component (2) and the receiver component (3, 4) are formed as prefabricated housed modules that are mounted on the underside of the substrate (6).
14. (*Withdrawn*) The circuit arrangement as claimed in claim 13, characterized in that the transmitter and receiver assembly (1) has a housing (10) having a receptacle opening (11) for the coupling of an optical fiber.
15. (*Withdrawn*) The circuit arrangement as claimed in claim 14, characterized in that the receptacle opening (11) is formed as a plug receptacle.
16. (*Withdrawn*) The circuit arrangement as claimed in claim 15, characterized in that the receptacle opening (11) serves for receiving a glass fiber arranged in a ferrule.

17. (*Withdrawn*) The circuit arrangement as claimed in claim 16, characterized in that the receptacle opening (11) is provided with an adjustable metal sleeve (12), into which an optical fiber or a ferrule surrounding the optical fiber can be plugged.
18. (*Withdrawn*) The circuit arrangement as claimed in claim 17, characterized in that a region between the lens (14, 15) and the waveguide (51) is potted with an optically transparent medium.
19. (*Withdrawn*) The circuit arrangement as claimed in claim 18, characterized in that a plurality of waveguides of the planar optical circuit (5) are assigned an array of optical fibers to be coupled, a lens for light coupling in each case being arranged between a waveguide and an optical fiber of the array, and the lens in each case being arranged on the planar optical circuit (5).
20. (*Withdrawn*) The circuit arrangement as claimed in claim 19, characterized in that a wavelength-selective filter (7) is in each case arranged upstream of the receiver components (3, 4).

21. (*Previously Presented*) An optical transmitter and receiver assembly comprising:

at least one transmitter component;

a plurality of receiver components;

a lens which serves for the optical coupling of the transmitter component and the receiver components to an optical fiber that can be fixed to the transmitter and receiver assembly;

a planar optical circuit consisting of one integrated waveguide, light from the transmitter component being coupled into the waveguide of the planar optical circuit and light being coupled out from the waveguide of the planar optical circuit and being guided onto the receiver components, the transmitter component and the receiver components being situated outside the plane in which the integrated waveguide is formed in the planar

optical circuit, the lens being arranged on the planar optical circuit, the light being guided between the lens on the one hand, and the transmitter component and the receiver components on the other hand, in the integrated waveguide; and

coupling-out and deflection means which couple out the received light for each received wavelength wavelength-selectively from the planar optical circuit and guide it onto a selected receiver component,

wherein

the lens is arranged in a cutout on the surface of the planar optical circuit,

the cutout is formed in the shape of a truncated pyramid,

the lens is arranged at the end side on an end area of the planar optical circuit directly adjoining the end area of the integrated waveguide of the planar optical circuit,

the lens is fixed to the end area of the planar optical circuit by means of an index-matched adhesive,

the lens is formed as a planoconvex lens having a plane side and the plane side is fixed to the end area of the planar optical circuit,

each of said plurality of receiver components detect light having a different wavelength, and

the coupling-out and deflection means comprise a Mach-Zehnder component and a selected deflection prism, light having a selected wavelength being coupled out from the waveguide by the Mach-Zehnder component, being fed to the selected

deflection prism and being deflected by the latter onto a selected receiver component.